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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,563	06/15/2001	Steven M. Bennett	5038-90	9889

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EXAMINER	
NOLAN, DANIEL A	

ART UNIT	PAPER NUMBER
2654	3

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,563	BENNETT ET AL.	
	Examiner	Art Unit	
	Daniel A. Nolan	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 June 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *4* is/are rejected.

7)☒ Claim(s) *1-3 and 5-30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 June 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification (i.e., 2nd paragraph page 13) is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description:

- Item 20 (in figure 1) is not in the description.
- Item 38 (in figure 2) is not in the description.

3. The drawings are objected to because:

- The meaning of construct 12 (in figure 1) is not clear or recognized as accepted practice as to the meaning of multiple unattached direction indicators.
- The connection between 42→34 needs to be more clearly illustrated.

4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show "*the flow changes*" as described in the specification (first two lines of page 9). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d).

The Examiner is proceeding with the understanding that either of the following remedies will be applied:

- A "decision block" will be inserted between 32→40 indicating one invention operating selectively to route audio to recognizers.
- Separate figures will depict 32→40→42→34 and 32→34 indicating unconditional routing to recognizers and not, respectively.

5. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

6. The disclosure is objected to because of the following informalities:

- The period is missing following the word "use" (7th line from the end of page 4).
- For consistency, the letter "*n*" should be lower case (last 2 lines in page 3).

Appropriate correction is required.

7. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

"*Selecting One of Multiple Speech Recognizers in a System on the Basis of Expectation of Performance Resulting From Experience*".

Claim Objections

8. Claims 5 and 10 are objected to because of the following informalities:

- In claim 5, the word "comprises" should be "comprised" (2nd line).
- Claims 10 and 16 are subject to interpretation. The term "*recognizer information*" could be interpreted to mean either "*information <u>about</u> the recognizer*" or "*information <u>from</u> the recognizer*".

  The Examiner is proceeding with the latter interpretation, as there were no enabling details disclosed in the Application (1st paragraph page 9) that would indicate that *associated recognizer information* was from other than the *provided results.*

Appropriate correction is required.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Kenne *et al* & Hsu *et al*

11. Claims 1-3, 5-7, 9-10, 13-16, 18-19, 21, 23-24 & 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenne *et al* ("Hybrid Language Models and Spontaneous Legal Discourse", 4th International Conference on Spoken Language, October 1996) in view of Hsu *et al* (U.S. Patent 5,677,991 A).

12. Regarding claims 1, 13, 18, 23 and 27; Kenne *et al* in describing *hybrid language models* reads on the features of the claim *for selecting a recognizer from a number of recognizers* as follows:

- Kenne *et al* (with the "transcripts" input on page 717, section 2, Data – in the right column) reads on the feature of *a) receiving an input stream;*
- Kenne *et al* (with the "perplexity" of the 2nd paragraph from end of left column to the top of the right column) reads on the feature of *b) deriving selection information, wherein the selection information includes performance-related information;*
- Kenne *et al* (with the "switching" of section 4, Results – in the right column page 718) reads on the feature of *c) using the selection information to select results from at least one enabled recognizer;*
- Kenne *et al* does not mention *applications.* Hsu *et al* (with the invention for flexible speech recognition that selects isolated word speech or continuous speech recognizers) reads on the feature of *d) returning the results to the application* (61 in figure 2). It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Hsu *et al* to the device/method of Kenne *et al*, providing a structure to put the strategy for selecting between recognizers into practice.
- With specific regard to claim 18, the *intrusion avoidance* of Hsu *et al* (51 in figure 2) corresponds to and performs the function of the *predictor* of the claim.

13. Regarding claim 2, the claim is set forth with the same limits as claim 1. Kenne *et al* (lines 8-11 of section 4, Results in right column page 718) teaches the feature that *causes a recognizer to be selected that is different than the recognizer used in a previous interaction* (by virtue of the fact that a switch is made *only* if the perplexity changes, which would occur *only* if the current interaction *differs from previous perplexities*).

Kenne *et al* does not mention that *the selection information is updated;* Hsu *et al* (lines 57-60) teaches this by setting the *reference score as a baseline* that is necessary to provide further evaluation. It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method and/or teachings of Hsu *et al* to the device/method of Kenne *et al* as a conventional programming method of preserving prior readings by storing them elsewhere to avoid their being overlaid by new measurements using the same algorithm code register fields.

14. Regarding claim 3, the claim is set forth with the same limits as claim 1. Kenne *et al* (with the formula in the 7th line of the left column page 718) discloses the feature of *deriving enabling information, and using the enabling information to enable at least one selected recognizer to process the input stream* (with the "*switch*" made in the 14th line of the right column page 718).

15. Regarding claims 5, 6 and 24; the claims are set forth with the same limits as claims 3, 1 and 23, respectively. Kenne *et al* (in the 2nd paragraph of section 4, Results – right column page 718) reads on the feature that *the enabling information* – and that consequently *the performance-related information – comprises at least one type of information from the group comprises of: channel characteristics, device characteristics, user information, contextual information, dialog state, recognizer costs and performance history.*

16. Regarding claims 7, 14 and 28; the claims are set forth with the same limits as claims 1, 13 and 27, respectively. Kenne *et al* (in the 1st line of page 718) records the classes of people into separate tracks to distinguish lawyers from witnesses, thereby reading on the feature that *deriving the selection information further comprises analyzing the input stream for channel characteristics.*

17. Regarding claims 9, 15, 19 and 29; the claims are set forth with the same limits as claims 1, 13, 18 and 27 respectively. Kenne *et al* (with Table 2 and the last paragraph of the right column, both on page 717) distinguishes between *Lawyers* and *Witnesses* (*Statements* & *Questions)*, thereby reading on the feature of *receiving contextual information associated with the input stream.*

18. Regarding claims 10 and 16 as understood by the Examiner, the claims are set forth with the same limits as claims 1 and 13, respectively. Kenne *et al* (with the

"switching" of section 4, Results – in the right column page 718) reads on the feature of *receiving recognizer information from the enabled recognizers to be used in the selection information.*

19. Regarding claim 21, the claim is set forth with the same limits as claim 18. Kenne *et al* (with the "switching" of section 4, Results – in the right column page 718) reads on the feature that *the predictor is operable to select a recognizer based upon the converted stream.*

Kenne *et al*, Hsu *et al* & Waibel *et al*'957

20. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenne *et al* in view of Hsu *et al* (U.S. Patent 5,677,991 A) and further in view of Waibel *et al*'957 (U.S. Patent 5,712,957 A).

21. Regarding claim 8, the claim is set forth with the same limits as claim 1. Kenne *et al* & Hsu *et al* do not mention separate input devices so would not distinguish on that basis. The Waibel *et al*'957 invention of a speech repair and correction method for speech recognition system provides for different inputs (23 & 24 in figure 1) and consequently, using this information, locates error in hypothesis with highest score from list, generates control signals and second list, combines two lists and replaces error with hypothesis with highest combined score.

This reads on the feature of *analyzing the input stream for device characteristics*, which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Waibel *et al*'[957] to the device/method of Kenne *et al* & Hsu *et al* so as to allow the decision to be influenced by recognition that some devices increase the confidence of recognition results done on the streams they produce.

Kenne *et al*, Hsu *et al* & Kundu

22. Claims 11-12, 17, 25-26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenne *et al* in view of Hsu *et al* and further in view of Kundu (U.S. Patent 5,924,066 A).

23. Regarding claims 11, 17, 25 and 30; the claims are set forth with the same limits as claims 1, 13 and 23, respectively. Kenne *et al* & Hsu *et al* do not mention *feedback.* With the invention for *classifying a speech signal,* Kundu (column 9 lines 49-54) reads on the feature of *receiving feedback and including the feedback in the selection information.*

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Kundu to the device/method of Kenne *et al* & Hsu *et al* so as to simplify training by including learned lessons on the basis of experience rather than attempting to predict all anticipated requirements.

24. Regarding claims 12 and 26; the claims are set forth with the same limits as claims 11 and 23, respectively. Kenne *et al* & Hsu *et al* do not mention *feedback.* Kundu (column 9 lines 50-51) reads on the feature that *feedback is received from one of the group comprised of: off-line analysis, user feedback, and feedback from the recognizer.*

It would have been obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Kundu to the device/method of Kenne *et al* & Hsu *et al* to adjust for variations in confidence levels corresponding to changes in the input stream over time and with use.

Kenne *et al*, Hsu *et al* & Waibel *et al*'000

25. Claims 20 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenne *et al* in view of Hsu *et al* (U.S. Patent 5,677,991 A) and further in view of Waibel *et al*'000 (U.S. Patent 5,855,000 A).

26. Regarding claim 20, the claim is set forth with the same limits as claim 18. Neither Kenne *et al* nor Hsu *et al* mention *confidence levels.* Waibel *et al*'000 (column 1 lines 55-67) teach the feature that *the recognizers are also operable to provide individual-result confidence levels to the predictor.* Because the determination is to be made between recognizers, it would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the

method/teachings of Waibel *et al*'000 to the device/method of Kenne *et al* & Hsu *et al* in order to select the product of the recognizer providing the highest level of confidence.

27. Regarding claim 22, the claim is set forth with the same limits as claim 18. Both Kenne *et al* and Hsu *et al* select after recognition. Waibel *et al*'000 (108 in figure 3) teaches the feature *to select a recognizer prior to the recognizer receiving the input stream* (column 7 lines 57-60) which would have made it obvious to a person of ordinary skill in the art of speech signal processing at the time of the invention to apply the method/teachings of Waibel *et al*'000 to the device/method of Kenne *et al* and Hsu *et al* because there is no need to operate recognition when controlling information would override selection.

Allowable Subject Matter

28. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

29. As allowable subject matter has been indicated, applicant's reply must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 CFR 1.111(b) and MPEP § 707.07(a).

30. The following is a statement of reasons for the indication of allowable subject matter:

- The present invention is directed to *processing speech using one of several available recognition devices*.
- Claim 4 identifies the uniquely distinct feature "*to enable a recognizer based upon its expected future performance*".
- The closest prior art of Kenne *et al* discloses that "*the enabling information is used to enable a recognizer*" but fails to anticipate or render the above underlined limitations obvious.

Conclusion

31. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Aragon (U.S. Patent 6,055,327 A) detecting data entry errors by sorting amounts and verifying amount order.
- Kundu (U.S. Patent 5,924,066 A) classifying a speech signal.
- Barry *et al* ("The Simultaneous Use Of Three Machine Speech Recognition Systems To Increase Recognition Accuracy", Proceedings of the IEEE 1994 National Aerospace and Electronics Conference, May 1994) ASR in parallel combine speech recognition accuracy better than by each of the individual systems alone.

- Yashchin *et al* ("Performance Of Speech Recognition Devices: Evaluating Speech Produced Over The Telephone Network", International Conference on Acoustics, Speech, and Signal Processing, May 1989) performance of four ASR devices reflect the realistic conditions under which the digits were obtained.
- Wang *et al* ("Towards Universal Speech Recognition", Fourth IEEE International Conference on Multimodal Interfaces, October 2002) teaches maintaining several monolingual engines.

32. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Daniel A. Nolan at telephone (703) 305-1368 whose normal business hours are Mon, Tue, Thu & Fri, from 7 AM to 5 PM.

If attempts to contact the examiner by telephone are unsuccessful, supervisor Richemond Dorvil can be reached at (703)305-9645.

The fax phone number for Technology Center 2600 is (703)872-9314. Label informal and draft communications as "DRAFT" or "PROPOSED", & designate formal communications as "EXPEDITED PROCEDURE". Formal response to this action may be faxed according to the above instructions,

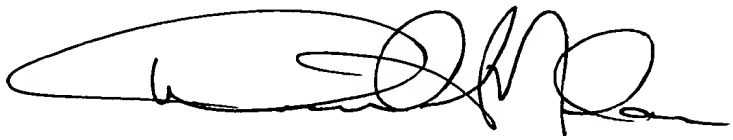
or mailed to: P.O. Box 1450
Alexandria, VA 22313-1450

or hand-deliver to: Crystal Park 2,
2121 Crystal Drive, Arlington, VA,
Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Technology Center 2600 Customer Service Office at telephone number (703) 306-0377.

Daniel A. Nolan
Examiner
Art Unit 2654

DAN/d
December 22, 2003



DANIEL NOLAN
PATENT EXAMINER